

ABSTRACT

A method and system for echo processing a receive signal using autocorrelation. A receive signal is sampled, digitized and high-pass filtered. A correlation signal is created by adding the filtered signal to a copy of the filtered signal shifted by a time unit. A set of correlation signals is created by repeating the process for a range of time units corresponding to a set of sequential sample points. Each correlation signal has a correlation indicator evidencing the strength of the correlation. The correlation signal having the highest correlation strength is identified, and the time shift used to create it is identified as the time of flight of the echo pulse. The echo distance is then calculated based upon the time of flight and the speed of propagation of the echo in the environment. The correlation indicator may be the maximum peak value of the correlation signal.